



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/722,774

11/27/2000

David Erb

777.386US1

4894

27488

7590

01/30/2004

MERCHANT & GOULD

P.O. BOX 2903

MINNEAPOLIS, MN 55402-0903

EXAMINER

SHRADER, LAWRENCE J

ART UNIT

PAPER NUMBER

2124

DATE MAILED: 01/30/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/722,774

Applicant(s)

ERB ET AL.

Examiner

Lawrence Shrader

Art Unit

2124

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-15, 17-24, 26 and 27 is/are rejected.
- 7) ☒ Claim(s) 7, 16 and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Art Unit: 2124

DETAILED ACTION

1. This action is in response to the amendment filed on October 30, 2003.
2. Claims 1 – 27 remain pending.
3. Applicant's arguments with respect to claims ^{1-6, 8-15, 17-24 and 26-27}~~1-27~~ have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 10, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Andrews et al., U.S. Patent 6,108,027 (hereinafter referred to as Andrews).

In regard to claim 1, Andrews discloses a method of compressing data:

“Determining difference information as a function of the data to be compressed;”

Andrews discloses that difference information is determined as a function of the compressed video information (column 1, line 53 – 62).

Art Unit: 2124

"Responding to the difference information satisfying a size constraint by encoding the difference information with reference to a set of commonly occurring difference values for a type of data to be compressed."

The Andrews invention encodes the difference information with reference to a commonly occurring difference values for the image data (column 1, lines 56 – 62).

In regard to claim 10:

Claim 10 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 1 (a method).

In regard to claim 19:

Claim 19 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 1 (a method).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 11, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al., U.S. Patent 6,108,027 in view of Perkins et al., U.S. Patent 5,828,414 (hereinafter referred to as Perkins).

In regard to claim 2, incorporating the rejection of claim 1 above:

Art Unit: 2124

“...before determining the difference information, storing an initial counter value...”

Andrews does not teach the storing of a counter value before determining difference information. However, Perkins does teach storing a counter value before completing a difference computation (column 6, lines 59 – 67). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with the storage of counter information before calculating the difference information in jitter removal as taught by Perkins, because storing counter information before the difference calculation allows the control information to be decoded and implemented in the processing of a signal without other reference information.

In regard to claim 11, incorporating the rejection of claim 10 above:

Claim 11 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 2 (a method).

In regard to claim 20, incorporating the rejection of claim 19 above:

Claim 20 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 2 (a method).

8. Claims 3, 4, 12, 13, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al., U.S. Patent 6,108,027 in view of Masters, U.S. Patent 5,212,772.

In regard to claim 3, incorporating the rejection of claim 1 above:

“accumulating the encoded difference information in a buffer...; and

“storing the contents of the buffer in a profiling data file in response to the buffer accumulating to a predetermined amount of difference information.” Andrews does not teach accumulating difference information in a buffer, nor storing it in a file when a predetermined amount of data is received. However, Masters does teach accumulating difference information in a buffer, and storing the contents in a file upon receiving a predetermined amount of information (column 4, lines 35 – 66). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with accumulating and storing of difference information in a buffer as taught by Masters because of the efficiency gained by buffering data and then writing only when the buffer is full rather than making write calls whenever any data is available.

In regard to claim 4, incorporating the rejection of claim 3:

“before storing the contents of the buffer...compressing the contents of the buffer.”

Andrews does not teach compression of buffer data. However, Masters compresses the buffer data before writing it to the file (e.g., Figure 2, column 4, lines 36 – 40). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with accumulating and storing of compressed difference information in a buffer as taught by Masters because of the efficiency gained by either reducing the buffer size or by increasing the amount of data to be stored in the buffer space and consequently writing a larger block of data to the file and reducing the number of write cycles.

Art Unit: 2124

In regard to claim 12, incorporating the rejection of claim 10 above:

Claim 12 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 3 (a method).

In regard to claim 13, incorporating the rejection of claim 12:

Claim 13 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 4 (a method).

In regard to claim 21, incorporating the rejection of claim 19 above:

Claim 21 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 3 (a method).

In regard to claim 22, incorporating the rejection of claim 21:

Claim 22 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 4 (a method).

9. Claims 5, 14, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al., U.S. Patent 6,108,027 in view of Edwards et al., U.S. Patent 6,615,370 (hereinafter referred to as Edwards).

In regard to claim 5, incorporating the rejection of claim 1 above:

“...the difference information is timestamp difference information...with reference to a set of commonly occurring timestamp difference values.” Andrews does not encode difference information based on a timestamp. However, Edwards teaches the comparison of timestamp

Art Unit: 2124

information with reference to a predetermined time (column 8, lines 34 – 49) and encodes the timestamp information for trace messages. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with the use of timestamp information as taught by Edwards because the timestamp information could be encoded (compressed) in a trace message as taught by Edwards.

In regard to claim 14, incorporating the rejection of claim 10 above:

Claim 14 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 5 (a method).

In regard to claim 23, incorporating the rejection of claim 19 above:

Claim 23 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 5 (a method).

10. Claims 6, 15, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al., U.S. Patent 6,108,027 in view of Faillace, U.S. Patent Re. 31,903 and further in view of Edwards et al., U.S. Patent 6,615,370.

In regard to claim 6, incorporating the rejection of claim 1 above:

“Encoding the difference information...with reference to a set of commonly occurring stack difference values,” Andrews does not teach use of a stack for difference values. However, Faillace teaches a stack for storing the absolute value of difference information (column 10, line 56 to column 11, line 8), but does not teach encoding the difference information. Edwards

Art Unit: 2124

teaches encoding of timestamp difference information (column 8, lines 34 – 49) for trace messages. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with the use of difference information in a stack as taught by Faillace modified by the encoding of difference information as taught by Edwards because the combination provides a means to store difference information to compute errors as taught by Faillace (column 11, lines 1 and 2) and encode it for messaging as taught by Edwards (column 8, lines 48 – 49) .

“Reconstructing a sign of the stack difference...” Andrews does not teach the reconstruction of a sign of stack differences. However, Faillace teaches a stack for storing the absolute value of difference information and means to reconstruct the sign (column 11, lines 3 – 8). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with the use of stacks and the reconstruction of a sign as taught by Faillace because the difference information of control data in the Andrews invention would then have a means to recover any necessary signed information relevant to the compressed data.

In regard to claim 15, incorporating the rejection of claim 10 above:

Claim 15 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 6 (a method).

In regard to claim 24, incorporating the rejection of claim 19 above:

Claim 24 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 6 (a method).

11. Claims 8, 17, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al., U.S. Patent 6,108,027 in view of Faillace, U.S. Patent Re. 31,903, further in view of Edwards et al., U.S. Patent 6,615,370, and further in view of Maxwell, U.S. Patent 6,106,571.

In regard to claim 8, incorporating the rejection of claim 1:

“...if the data to be compressed represents stack information collected upon entry to and exit from a function, recording a single difference value for the stack information.” Andrews teaches the implementation of a compression function based on difference information, but neither Andrews nor Faillace nor Edwards teaches the use of a stack for difference values collected from entry from and exit from a function. However, Maxwell teaches difference information collected from entry from and exit from a function (column 3, lines 53 – 67). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with the use of difference information in a stack as taught by Faillace modified by the encoding of difference information as taught by Edwards, further modified by the collection of difference information upon entry to and exit from a function enabling the invention of Andrews to process time stamp data for the purpose of collecting information about the time spent calculating a function as taught by Maxwell (column 3, lines 57 – 61) and evaluating the efficiency of the function.

In regard to claim 17, incorporating the rejection of claim 10 above:

Claim 17 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 8 (a method).

In regard to claim 26, incorporating the rejection of claim 19 above:

Claim 26 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 8 (a method).

12. Claims 9, 18, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maxwell, U.S. Patent 6,106,571 in view of Faillace, U.S. Patent Re. 31,903, further in view of Bodnar et al., U.S. Patent 6,295,541, and further in view of Andrews et al., U.S. Patent 6,108,027.

In regard to claim 9, Maxwell discloses a means to process profiling data:

“Collecting the profiling data;” Maxwell collects time stamp information with tags (probes) to be used as a performance statistic the profiling report (column 3, lines 53 – 67).

“Determining the difference information as a function of the collected profiling data;” Maxwell determines difference information based on profiling data (time stamp information) to calculate execution time (column 3, lines 57 – 61).

“If the profiling data is time stamp data...;” Maxwell does not teach encoding the difference information. However, Andrews teaches the use of timestamp information in the compression function based on difference information (column 1, line 50 – column 2, line 6), and Bodnar teaches the comparison of timestamp information with reference to a range (commonly occurring) of timestamp information (column 28, lines 46 – 67). Therefore, it would

Art Unit: 2124

have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews modified by Maxwell to enable the processing of time stamp difference information, and further modified by Bodnar to reference the time stamp information to commonly occurring time stamp values, because the timestamp difference information could be used for synchronization or performance monitoring functions in the system.

“If the profiling data is stack data,

“encoding the difference information as an unsigned quantity...” Maxwell does not teach the use of a stack or encoding the difference information. However, Andrews teaches the use a compression function based on difference information (column 1, line 50 – column 2, line 6), and Faillace teaches a stack for storing the absolute value of difference information (column 10, line 56 to column 11, line 8). Storing data in a stack is well known in the art for its last in first out capability, and could be useful in the synchronization of encoding/decoding functions. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine the compression function based on difference information as taught by Andrews with the use of difference information as taught by Maxwell, and further modified by Faillace implementing difference information in a stack, because the last in first out feature of a stack allows the difference data to be correlated with other corresponding information in the system.

“reconstructing the sign of the stack differences...” Maxwell does not teach the reconstruction of a sign of stack differences. However, Faillace implements a stack for storing the absolute value of difference information and means to reconstruct the sign (column 11, lines

Art Unit: 2124

3 – 8). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to combine difference information of the profiling data as taught by Maxwell with the use of stacks and the reconstruction of a sign as taught by Faillace because the difference information of profile data could then be matched with any necessary sign information relevant to the data.

In regard to claim 18, incorporating the rejection of claim 10 above:

Claim 18 (a computer readable medium) is rejected for the corresponding reasons put forth in the rejection of claim 9 (a method).

In regard to claim 27, incorporating the rejection of claim 19 above:

Claim 27 (a computer arrangement) is rejected for the corresponding reasons put forth in the rejection of claim 9 (a method).

Allowable Subject Matter

13. Claims 7, 16, and 25 are allowed.

In regard to claim 7:

“...dividing a quantity represented by the difference information by four before encoding...” Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The cited prior art taken alone or in combination fail to teach dividing a quantity represented by the difference information by four before encoding.

In regard to claim 16:

Art Unit: 2124

Claim 16 (a computer readable medium) is allowed for the corresponding reasons put forth in the allowance of claim 7 (a method).

In regard to claim 25:

Claim 25 (a computer arrangement) is allowed for the corresponding reasons put forth in the allowance of claim 7 (a method).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Re. 36,633 (U.S. Patent 5,260,978) to Fleischer et al., regarding time stamp for timing recovery.

U.S. Patent 6,119,213 to Robbins, regarding memory addressing using time stamp data in synchronizing a coding/decoding mechanism.

U.S. Patent 6,563,875 to Auvray et al., regarding coding and decoding images.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Shrader whose telephone number is (703) 305-8046. The examiner can normally be reached on M-F 08:00-16:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703) 305-9662. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Art Unit: 2124

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Kakali Chen

Lawrence Shrader
Examiner
Art Unit 2124

January 22, 2004

KAKALI CHAKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100